

GOVERNMENT OF INDIA  
MINISTRY OF COAL

**RAJYA SABHA**  
**UNSTARRED QUESTION NO. 679**  
**TO BE ANSWERED ON 02.12.2024**

**Sustainable mining practices and innovations**

**679 Shri Debashish Samantaray:**

Will the Minister of **COAL** be pleased to state:

- (a) the innovative mining techniques or technologies adopted to reduce environmental and ecological impact in the coal mining regions;
- (b) the initiatives to promote sustainable mining practices, including the management of mine waste and water conservation; and
- (c) the international collaborations or research projects aimed at advancing sustainable coal mining practices in the country?

**ANSWER**

**MINISTER OF COAL AND MINES**  
**(SHRI G. KISHAN REDDY)**

(a): Innovative mining techniques or technologies adopted to reduce environmental and ecological impact includes:

- Use of surface miners, continuous miners, highwall / longwall mining, etc.
- Increasing installation & usage of First Mile Connectivity (FMC) projects to reduce coal transport via roads.
- Improving energy efficiency across coal mining projects.
- Reclamation and eco-restoration of mined-out areas including development of eco-parks, mine tourism sites, etc.
- Conceptualizing re-purposing of de-coaled areas for sustainable uses like installation of renewable energy generation plants, development of agricultural avenues for surrounding communities, development of mine sumps, etc.
- In order to ensure sustainable mining practices, the compliance of environmental and forestry clearance conditions are being ensured.

(b): Coal/Lignite PSUs under the guidance of the Ministry of Coal (MoC) have undertaken various environmentally sustainable measures which inter-alia include:

- **Greening Initiatives—Bio-Reclamation/Plantation:** Coal/Lignite PSUs have been constantly making efforts to minimize the footprints of coal mining through sustained reclamation and afforestation of areas in and around their operating mines. In FY 2023-24, about 2,782 Ha were brought under green cover, with 5.45 million saplings planted by Coal/Lignite PSUs.

- **Eco-parks:** In FY 2023-24, Coal/Lignite PSUs developed 3 Eco-parks/Mine Tourism sites in various coalfields. This effort of the Ministry of Coal emphasizes the commitment to creating sustainable and engaging spaces for the local communities.
- **Efficient utilization of mine water:** Mine water after the application of appropriate treatment methods is utilized for various purposes such as - community supply for domestic and irrigation purposes; industrial use for dust suppression, plantation, firefighting, machinery washing, sprinkling in UG workings, creation of recreational areas, fish farming, and groundwater recharge etc. Coal/Lignite PSUs have also entered into an MoU with respective State Governments for community water supply. In FY 2023-24, about 4,892 lakh kilolitres (LKL) of mine water was offered for community purposes (Domestic/ Drinking - 2389.5 LKL & Irrigation - 2502.82 LKL).
- **Gainful Utilization of Overburden:** Extracting sand from Over Burden (OB) for construction and stowing material supports sustainable development by providing affordable sand and reducing the land required for OB dumps. As of March 2024, Coal/Lignite PSUs have commissioned 4 OB processing plants and 5 OB to M-Sand Plants. This initiative not only helps reduce environmental pollution, improve the riverine ecosystem, enhance water flow, and boost groundwater recharge but also provides a cheaper alternative for construction sand.
- **Energy Efficiency Measures:** Coal/Lignite PSUs have been taking of various energy conservation and efficiency measures over the years. In FY 2023-24, Initiatives such as the replacement of 1.37 lakh conventional lights with LED lights, installation of 2,165 energy-efficient air conditioners, 46,750 super fans, deployment of 153 electric vehicles, and utilization of 531 efficient water heaters, 338 energy-efficient motors for pumps, 1430 auto timer in street lights among others, have resulted in remarkable savings.
- **Green Credit Programme:** CIL and its subsidiaries are also participating in extensive plantation under Green Credit Program launched by MoEF&CC. CIL has already registered for restoration of more than 3200 Ha of degraded forest land.
- **First Mile Connectivity (FMC) projects:** Coal PSUs have taken steps to upgrade the mechanized coal transportation and loading system under 'First Mile Connectivity' projects. Commissioning of FMC projects in coal mining areas reduces consumption of diesel significantly and therefore reduces carbon emissions.
- **Deployment of Blast free technology in coal mining:** Coal companies are deploying modern equipment having environment friendly features, like Surface Miner in coal, which eliminates the drilling, blasting and crushing operations in coal and hence, in turn, obviates pollution caused due to these operations. Rippers are also being deployed for blast-less removal of Over burden in some mines.
- **Renewable Energy and clean coal initiatives:** Coal PSUs have also started commissioning Renewable Energy power projects. Additionally, they are venturing into various clean coal technologies like coal bed methane (CBM), etc.
- **Scientific Closure of Mines:** Mine Closure Plan is an integral part of the Mining Plan for scientific closure of coal mines.

(c): In order to strengthen the mine closure and repurposing activities collaboration with World Bank and GIZ is being done to implement global best practices. Coal India Limited (CIL) has MoU's with expert agencies of repute like NEERI, ICFRE etc. to assist in taking up various specific assignments of coal sector, research & development and capacity building of CIL executives in various emerging areas of environmental management. CIL has engaged ICFRE for scientific project of "Standardization of Package and Practices for Eco-rehabilitation of Degraded Coal Mines falling under different Agro-climatic Zones of India through Forestry Interventions".

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